

iCOMBANA-V-DA

High efficient and reliable

Combat Navigation System



Static &
on-the-move
Alignment



iCOMBANA-V

iCOMBANA-V is part of the INS product family of systems for inertial navigation and guidance, north finding, stabilization, true heading determination and for dynamically motion analysis with MEMS based gyros, that covers applications, which require accuracy, reliability and an open interface to the user.

- Integrated L1 GPS receiver
- option: L1L2 GPS/GLONASS/GALILEO/Beidou receiver
- inertial navigation & surveying system for land / surface, airborne, naval and other applications
- MEMS technology with high angular resolution and robustness; high data rate, low latency
- Integrated VMS / odometer interface
- Interfaces: Ethernet TCP/IP - UDP, CAN, UART RS422, ARINC429, ARINC825, HDLC, UBS, ext. GNSS corrections (option)

iCOMBANA-V consists of three accurate MEMS gyroscopes with low random walk and high gyro angular resolution, three servo accelerometers, a powerful strapdown processor and an open and flexible interface, which can be customized on request.

All data like attitude, heading, position, velocity, rates and acceleration are sent with up to 500 Hz via Ethernet or RS422 (UART) or CAN or ARINC429 or HDLC with time stamp related to UTC/ PPS.

The GNSS data are transmitted via the same or alternate interface. All signals are fed via robust connectors of type MIL-C-38999-III.

Its dual-antenna GNSS setup allows the system to perform a true heading determination at standstill or on-the-move. Furthermore the system is designed for



“plug & play” operation and e.g. estimates the wheel sensor’s scale factor and misalignment automatically.

The system is delivered with an internal power conditioning according to MIL-STD 461G and transient protection according to MIL-STD 704F.

With iXCOM-CMD an operation and maintenance software, operable under Linux and MS Windows, incl. moving map, waypoint navigation etc. is available. The system is manufactured in Germany and is neither covered by export control nor by ITAR regulations.

Technical Data iCOMBANA-V and iCOMBANA-V-DA

True Heading:	4 mil / L[m] [RMS] by dual-antenna (-DA) operation at antenna baseline L Example: L = 2 m → heading accuracy 2 mil (under suffic. GNSS conditions) < 1 mil (0.06°) [RMS] with sufficient GNSS visibility and aiding on the move ¹ Heading drift during short GNSS outages after suffic. GNSS aiding (typical): 0.3 mils / min.
Position accuracy:	< 2 m [RMS] (GPS, S/A off); 2 cm [RMS] with RTK aiding; 0.6 m with SBAS < 0.2 % DT [CEP] (during loss of GPS, odometer aided)
Altitude:	< 6 m [RMS] (GPS, S/A off)
Attitude Accuracy:	< 1 mil [RMS] (with temporarily sufficient GPS coverage) < 2 mils [RMS] (w/o GPS aiding)
Angular Rate / Accel. Range:	±480 °/sec , ±15 g
GNSS Aiding:	integrated L1 GPS receiver; option: integrated L1L2 GPS/GLONASS/GAL + SAASM receiver
Alignment Time:	< 3 min. after GNSS cold start, < 90 sec after GNSS warm start, < 30 sec with stored heading duration of inflight alignment depends on motion (30 sec ... 5 minutes)
Data Output Rate, SYNC:	1...500 Hz, internal bandwidth 500 Hz; PTP on Ethernet as option
Temperature range:	-55 to +71°C operating (case temperature), -55 to +67 °C specified perf., +85 °C short term, -55 to +85°C storage
MTBF / MTTR; Installation:	35,000 hrs (estimated) / < 30 minutes / installation in all arbitrary orientations allowed
Shock, Vibration, Altitude:	6 g / 20 ms (operating); 40 g / 15 ms non-operating; 40 g / 20 ms crash safety; 10...2'000 Hz / 4.1 g rms operational / 6 g rms endurance; 60'000 ft
Qualification:	designed to meet MIL-STD-810G, MIL-STD-461G, MIL-STD-704F, DO160G (qual. on request)
Power; Start-up-Time:	10...35 V DC, < 25 W, overvoltage protection up to 60 V ; < 15 sec (< 2 min. GNSS cold start)
Weight / Size / Connector:	< 5.1 kg / approx. 187 x 130 x 261 mm ³ (without connectors) / MIL-STD-38999 III, TNC
Software:	internal real-time INS/GNSS/ODO data fusion Kalman filter, iXCOM-CMD GUI

¹ under sufficient GNSS conditions, sufficient motion dynamics and trajectory

